

AUSTPAC RESOURCES N.L.

ANNUAL GENERAL MEETING

13th November, 2002

**Proprietary Technology for
the Titanium Dioxide (TiO₂)
Industry**

CORPORATE OBJECTIVE

TO CREATE SIGNIFICANT AND
SUSTAINABLE WEALTH FOR
SHAREHOLDERS

- By becoming one of the largest producers of ultra high grade synthetic rutile
- By licensing technologies for non-SR applications to generate additional income

ERMS

Ilmenite Upgrade

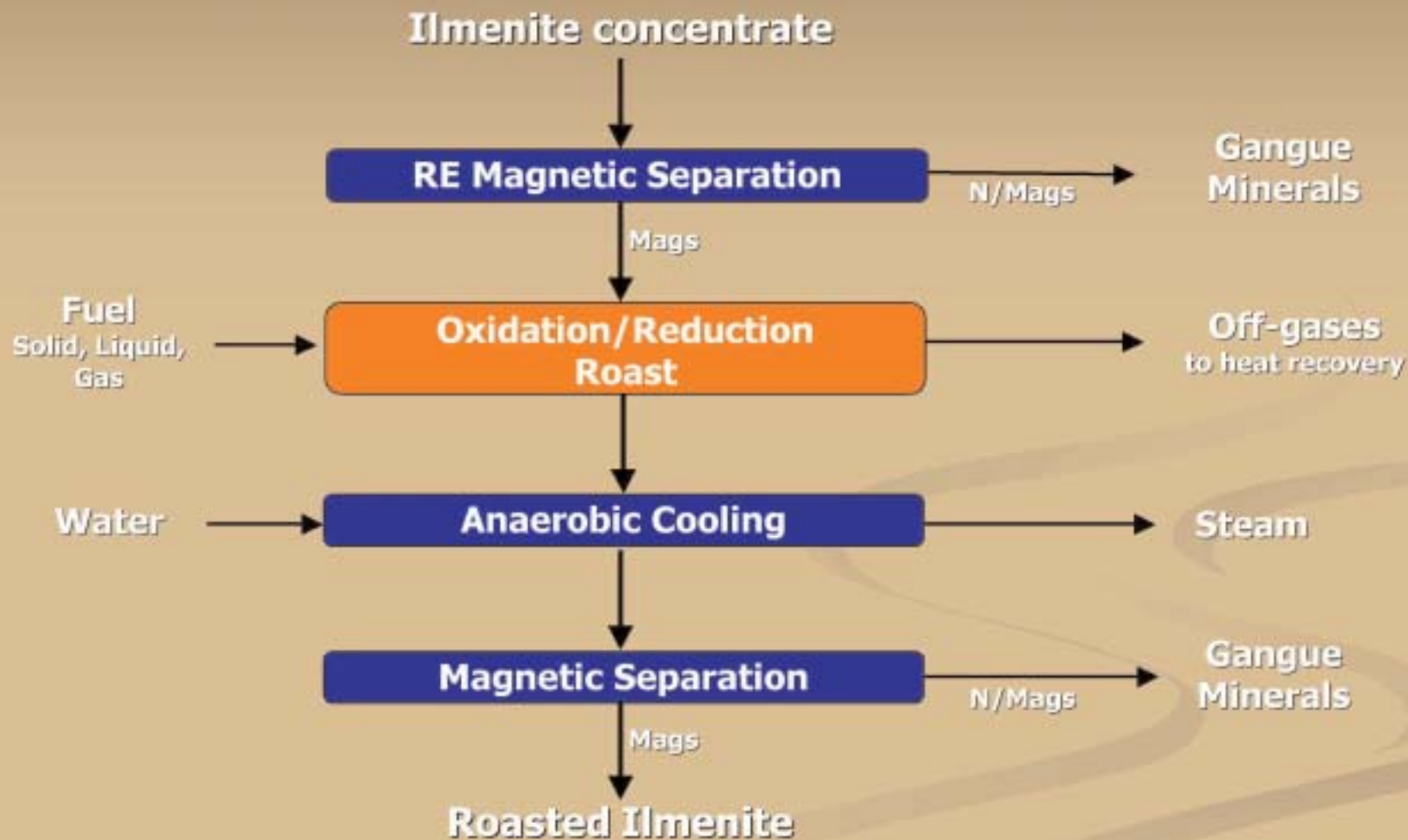
EARS

Acid Regeneration

**ERMS
+
EARS**

**Ultra High Grade SR
= ERMS SR**

Roasting



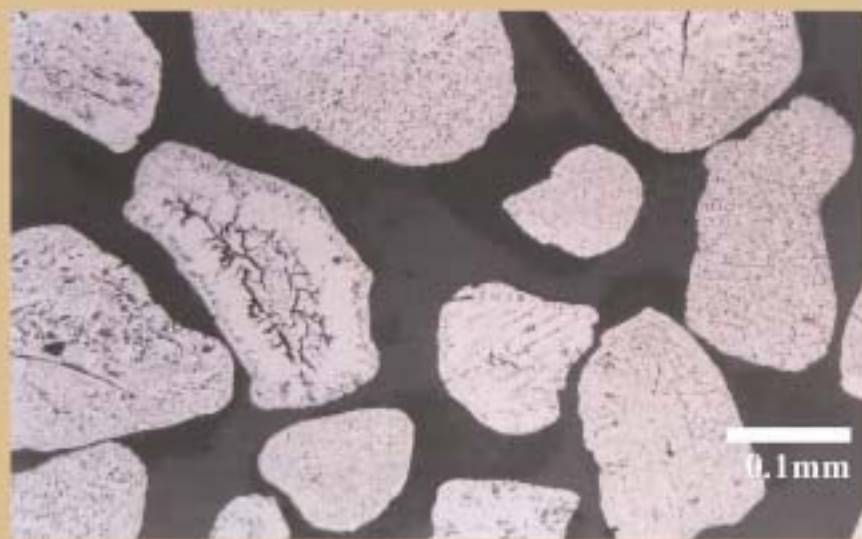


Ø 500mm
Fluid Bed
Roaster at
Pilot Plant



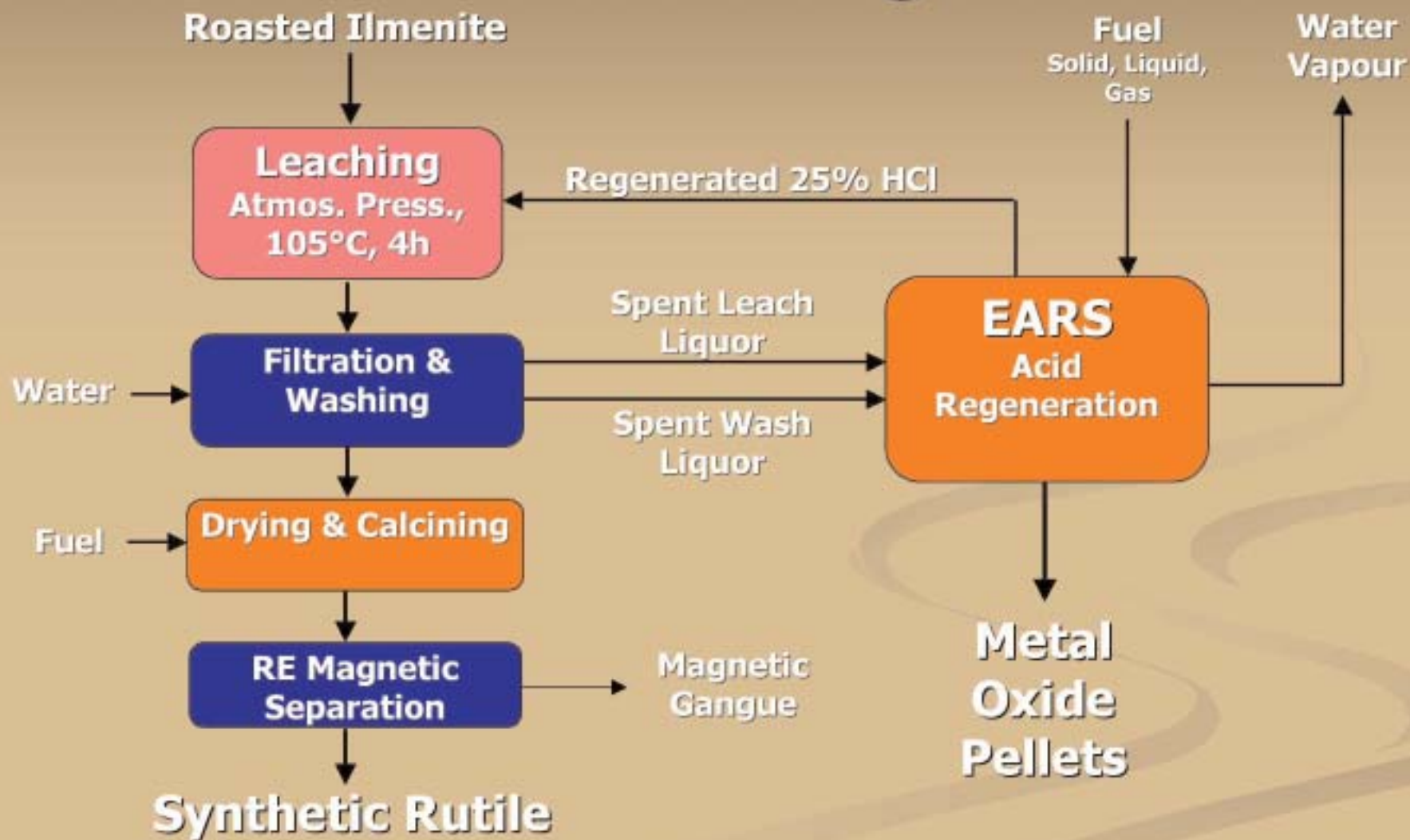
Unroasted Ilmenite

Oxidised Ilmenite



Reduced Ilmenite

Leaching

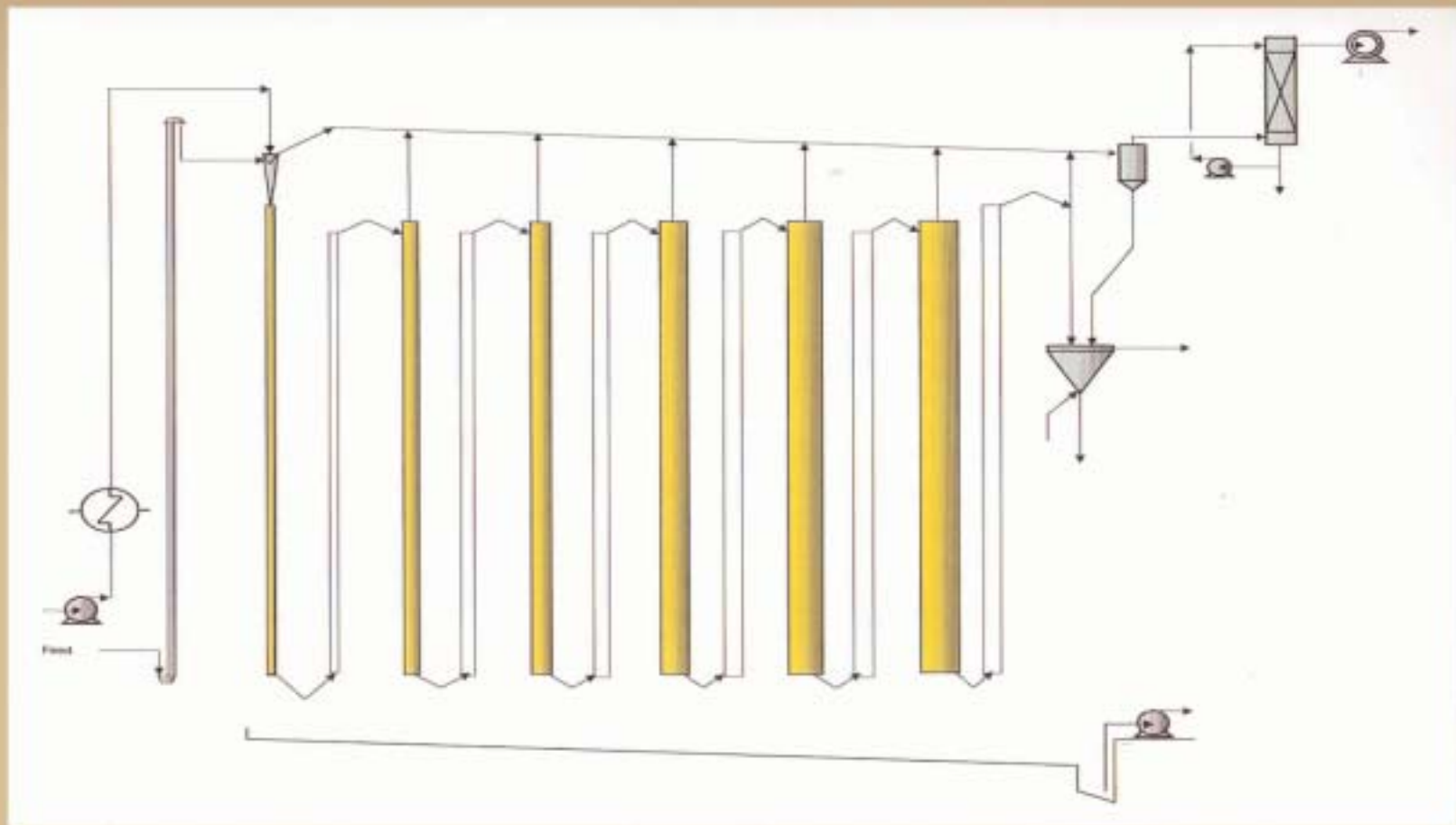


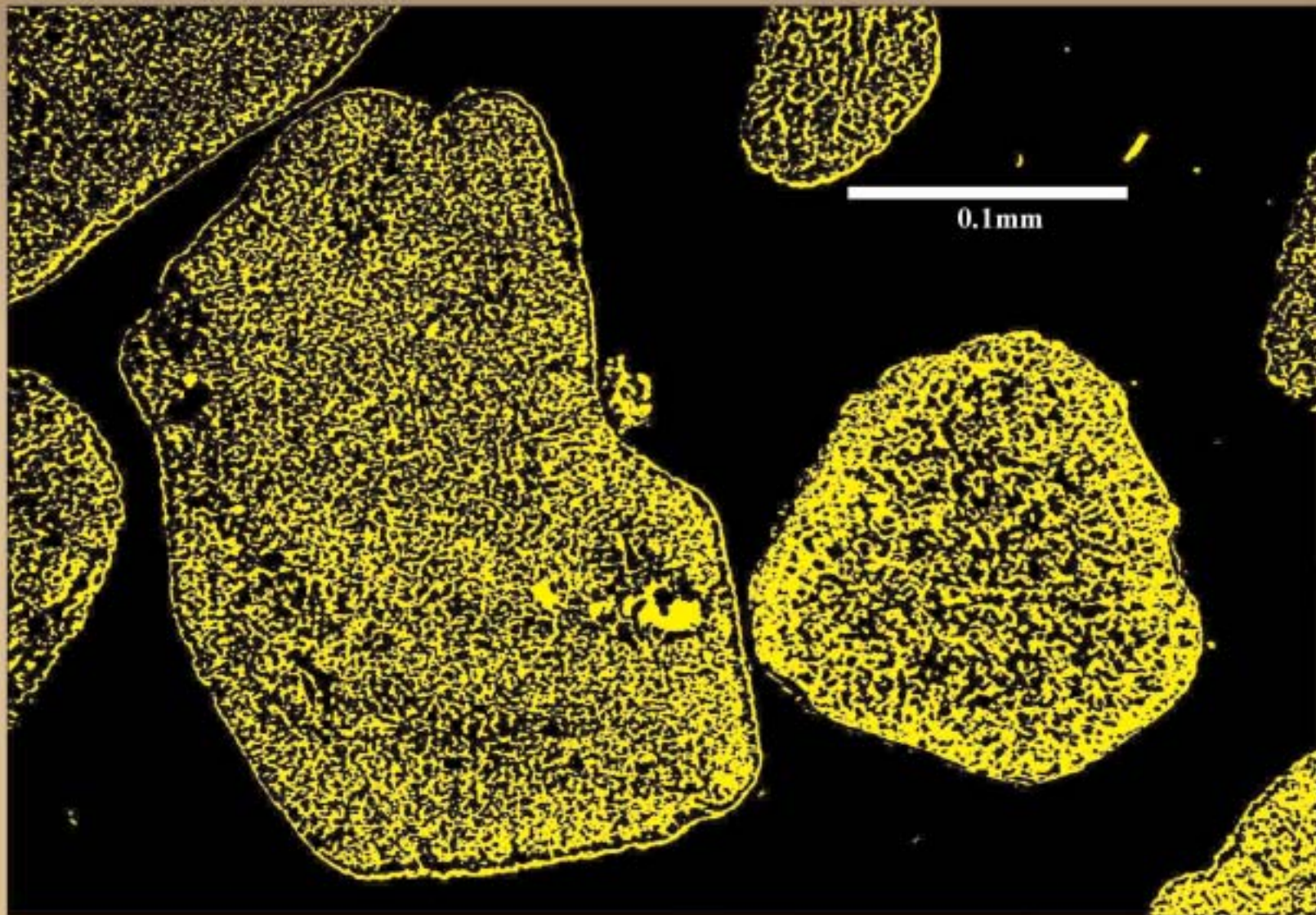


Leach Vessels at Pilot Plant

Continuous Leach Reactor

(Patent pending)



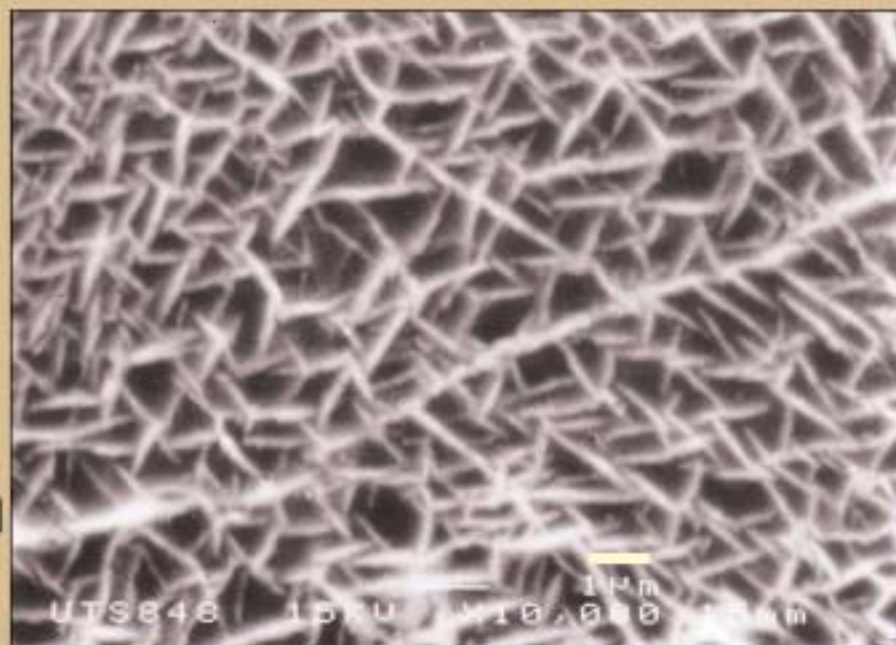


ERMS Synthetic Rutile

ERMS SR

Typical Chemical Analysis

■ TiO_2	97.50%
■ Fe_2O_3	0.82%
■ SiO_2	0.77%
■ Al_2O_3	0.13%
■ Cr_2O_3	0.02%
■ CaO	0.02%
■ MgO	0.01%
■ MnO	0.01%
■ U+Th	<15ppm



THE TiO₂ MARKET

Where does ERMS
Synthetic Rutile fit?

THE TiO₂ INDUSTRY

- 95% of titanium used in TiO₂ pigment form
- US\$8 billion industry; 3% pa growth
- Mature industry – top 5 producers account for 74% of global capacity
- Two manufacturing processes – **Chloride** and **Sulfate** processes

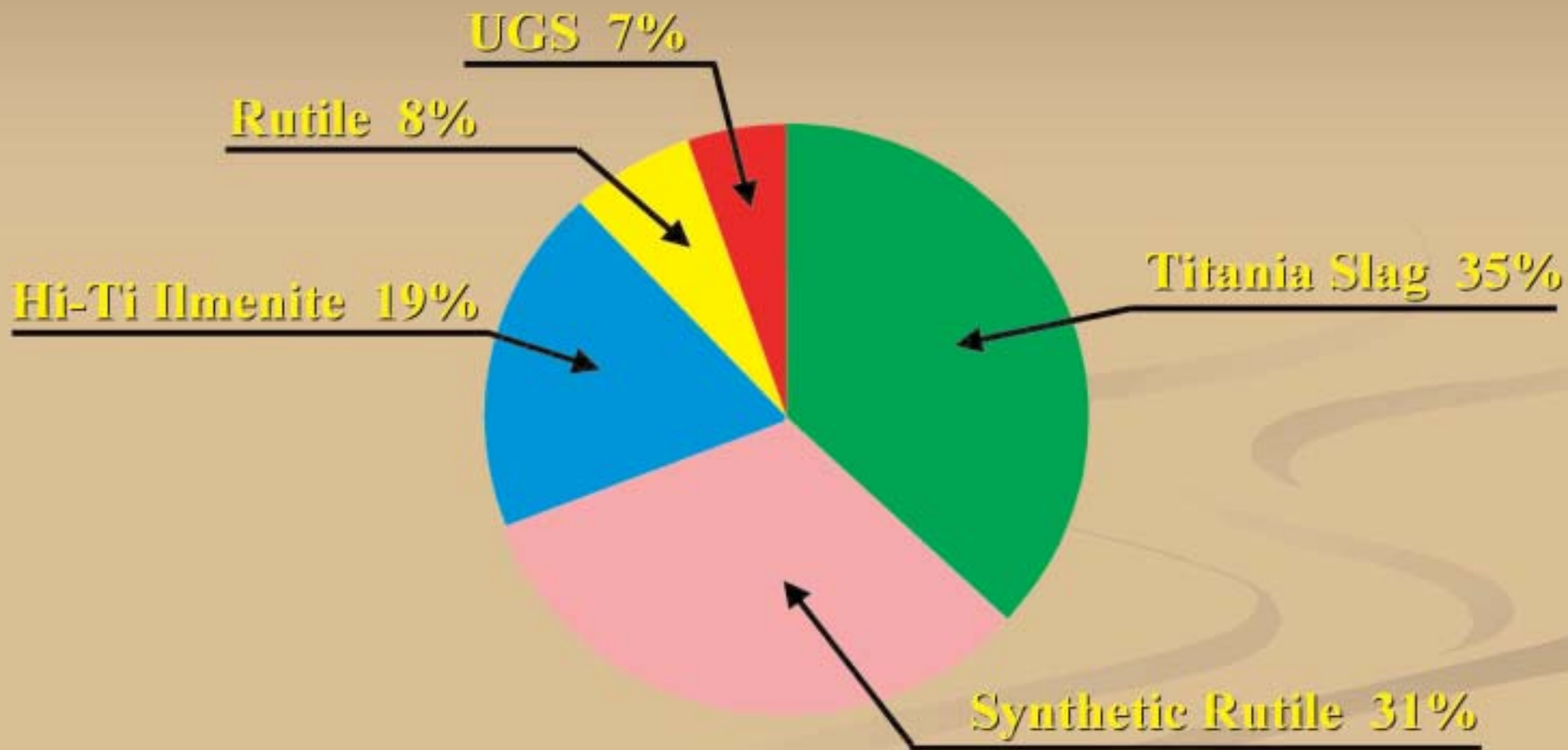
CHLORIDE vs SULFATE

- Chloride (60%), Sulfate (40%)
- Chloride growing at expense of sulfate: better product, less waste, wider end use
- Chloride route proprietary; entry barrier

BUT

- Chloride process requires high grade feedstock

CHLORIDE FEEDSTOCKS



ILMENITE UPGRADING

Process	Ilmenite Feedstock	Impurity Removal	Economic Limitations
Titania Slag	Low TiO ₂	None	Power Cost
Becher SR	High TiO ₂	Minor	Coal, Fe Oxide
Benilite SR	Wide range	Good	Acid, Fe Oxide
ERMS SR	Wide range	Most	None

THE QUALITY DIMENSION



ERMS S.R. (97 - 98% TiO₂)

ERMS SR - a premium feedstock for TiO₂ pigment and titanium metal



BECHER (92 - 94% TiO₂)



BENELITE (95 - 96% TiO₂)

THE ENVIRONMENT

- Solids
 - Saleable iron oxide pellets
- Liquids
 - No liquid effluent, all water recycled
- Gases
 - Scrubbed water vapour (steam)
 - Dioxins and Furans – not detectable
- Energy
 - Waste heat used to generate electricity for the plant
- ERMS SR is the most environmentally acceptable process

THE COST DIMENSION (\$US/t)

Process	Capital	Operating	Price	Margin
ERMS SR	450	130	430	300
Becher SR *	550	150	400	250
Titania Slag	970	190	380	190
Benilite SR	750	260	410	150

*Note: * The Becher process is ore and coal specific.*

THE COMPETITIVE ADVANTAGE OF ERMS SR

- Applicable to all grades of ilmenite
- Simple, cost-effective process, low scale-up risk
- Ultra high quality synthetic rutile product
- Low capital and operating costs
- High margin business

AUSTPAC'S PROJECTS - 2002

- Newcastle Pilot Plant Operational

UNIQUE PILOT PLANT

- Fluid Bed Roasting (ERMS)
- Magnetic Separation
- Bulk Leaching
- Fluid Bed Calcining
- Agglomeration
- Acid Regeneration (EARS)



**OVER 70 DIFFERENT TYPES OF ILMENITE
SUCCESSFULLY TESTED**

PILOT PLANT UPGRADES

After-burner ensures
off-gases are clean



PILOT PLANT UPGRADES

New 250mm roaster installed for low temperature roasting; used for BeMaX's test program; greatly enhances the pilot plant's flexibility



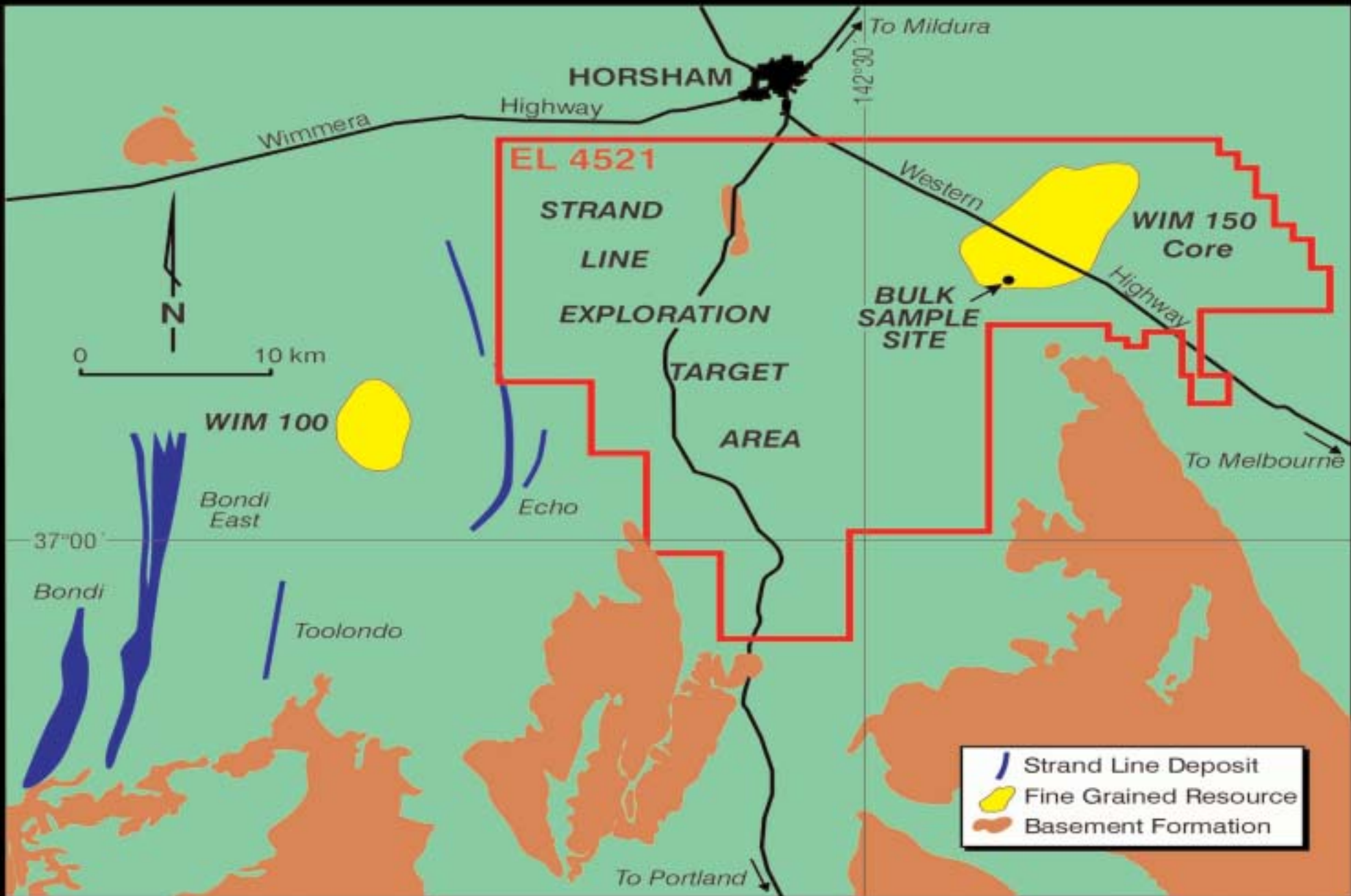
AUSTPAC'S PROJECTS - 2002

■ Murray Basin

- Ilmenite beneficiation BeMaX (2003);
others
- WIM 150 R&D Program

MURRAY BASIN

- Now a significant heavy mineral resource base
- Corporate consolidation underway
- BeMaX, MBT, Iluka, Sons of Gwalia?
- Only one current producer
- Ilmenites contain chromite – need upgrading
- Austpac – priorities
 - Ilmenite – roasting to remove chrome
 - ERMS SR plant – JV with MB producer
 - WIM 150 – R&D at pilot plant to unlock giant resource



E.L. 4521 PROGRESS IN 2002



Drung South Bulk
Sample Site



Rehabilitated as a farm dam

E.L. 4521 PROGRESS IN 2002



Coarse-grained heavy minerals drilling program

WIM 150

Fine Grained Minerals Program



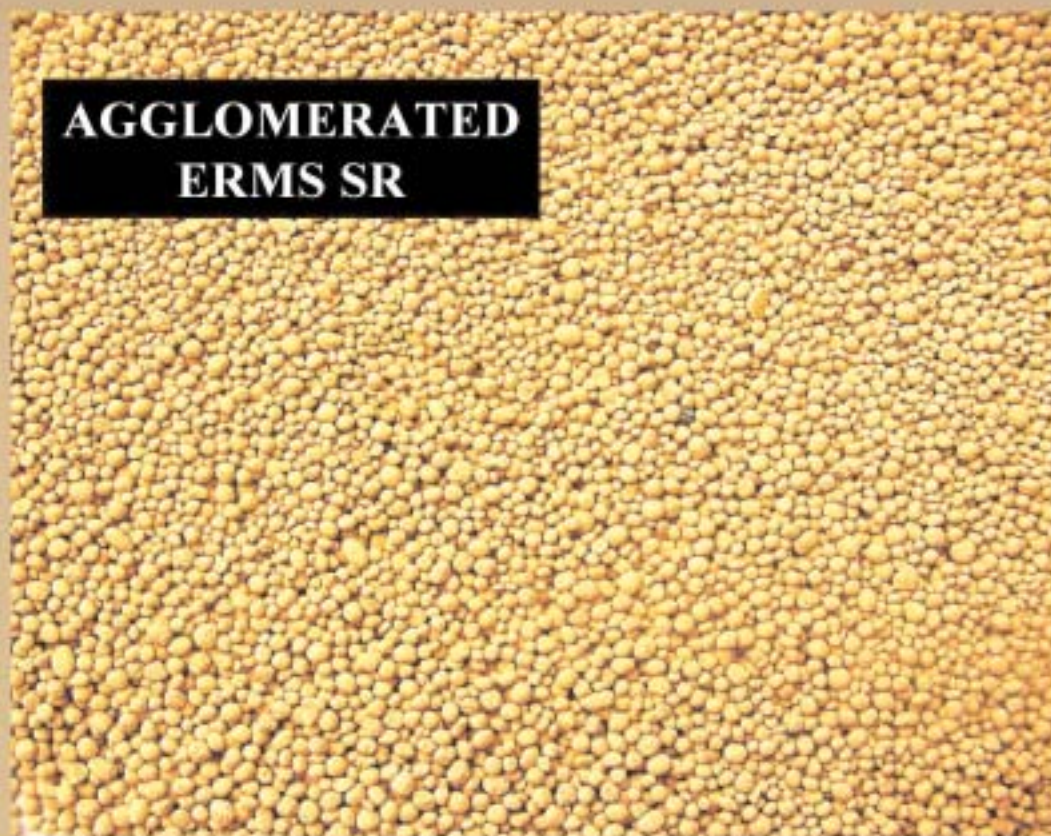
0.1mm



0.1mm

WIM 150

Fine Grained Minerals Program



**AGGLOMERATED
ERMS SR**

5mm

WIM 150

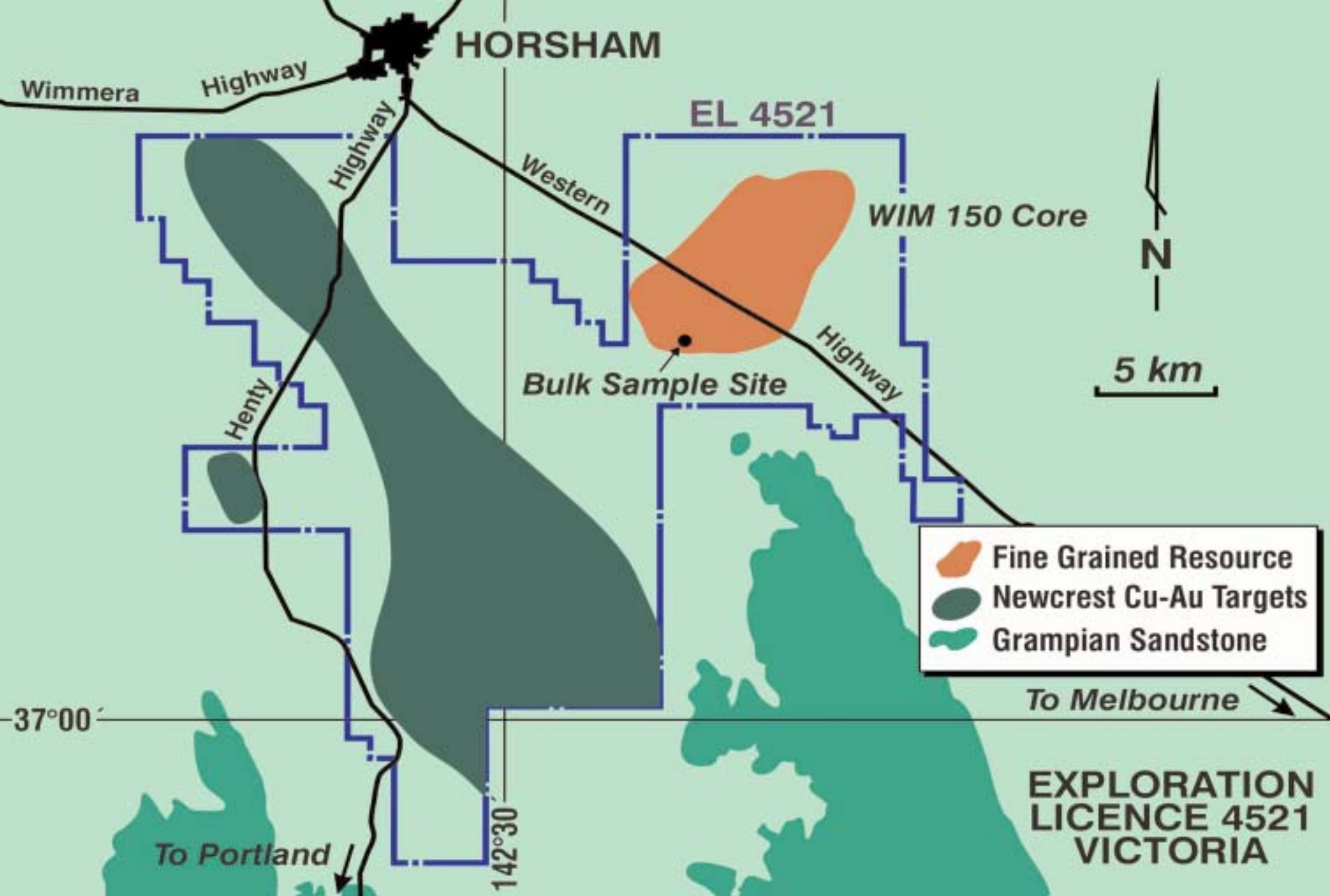
Fine Grained Minerals Program



0.1mm



0.1mm



The image is an aeromagnetic map showing magnetic intensity variations. A red boundary outlines a specific area of interest. A yellow text box is overlaid on the map. Two yellow starburst symbols are located in the lower right quadrant of the red boundary. Several black lines, likely representing geological features or survey lines, are visible across the map. The map uses a color scale from blue (low magnetic intensity) to red (high magnetic intensity).

EL4521

Drilling starts in December 2002

**AEROMAGNETIC
DATA
E.L. 4521**

AUSTPAC'S PROJECTS - 2002

- India
 - New Projects
 - AusRutile J.V. (Ticor/IRE)

INDIA'S MINERAL SANDS

- Vast HM resources
- Exceptional grades (10% to >23% HM)
- 50-52% TiO_2 ilmenite - sulfateable only
- ERMS SR process ideal for Indian ilmenites - produces ultra high grade SR for pigment or titanium metal
- Value addition is a Government priority

OVER 80% LOCATED IN THREE STATES

OSCOM PROJECT	23% HM	>23 Mt	50% TiO ₂
ANDHRA PRADESH	19% HM	22 Mt	50% TiO ₂
TAMIL NADU	11% HM	77 Mt	53% TiO ₂

INDIA CONTAINS 20% OF WORLD ILMENITE



AUSRUTILE JOINT VENTURE

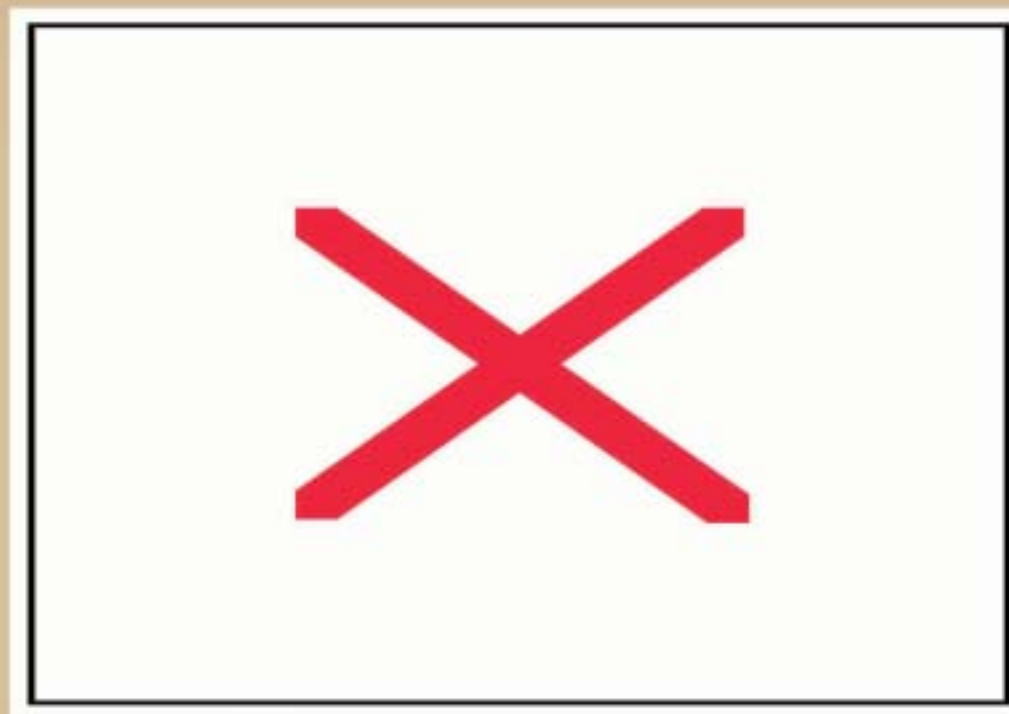
ORISSA, INDIA

PARTICIPANTS

IRE – Resource

APG – Technology

TOR – Funding



AUSTPAC'S PROJECTS - 2002

- New SR ProjectSR Plant – New JV

Why 30,000 tpa?

- New high grade feedstock
- Trials by pigment producers and Ti-metal manufacturers
- >25,000 tonnes SR required for market trials to establish sales contracts
- Potential for contracts >70,000 tpa

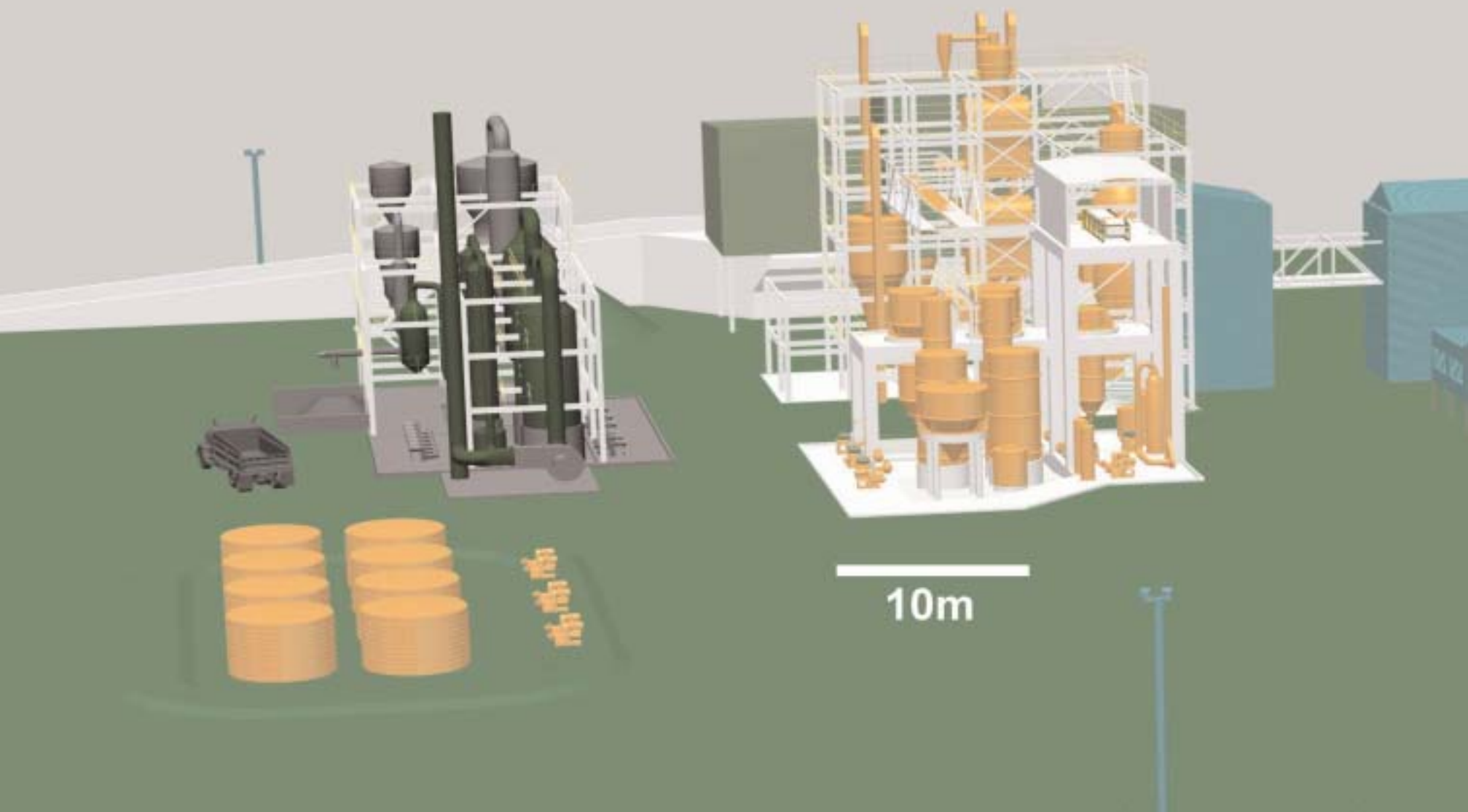
30,000 tpa ERMS SR Plant

Cash Flow

- Sales pa @ \$US 430/t \$A 25 million
- Operating Cost pa \$A 9 “
- Net Cash Flow pa EBITDA \$A 16 “

- CAPITAL COST \$A 40 million

30,000 tpa ERMS SR PLANT



AUSTPAC - THE FUTURE

- Technology is proven, plant design criteria are confirmed at +/- 10%
- JV will assure supply of low cost ilmenite from large resource base for long term production
- Build 30kt SR plant; secure off-take agreements, generate revenue and showpiece technology
- Obtain financing for 100kt plant
- Proceed with world class SR facility